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L9: Entry 10 of 12 File: USPT Apr 29, 1975

DOCUMENT-IDENTIFIER: US 3880742 A
TITLE: .beta.-1,4,/.beta.1,3 Glucanase

BSPR:
An alternative mode of treatment is to filter off the mycelium, concentrate the resulting filtrate, preferably in vacuo, absorb the concentrated solution in a suitable absorbent solid, for example ground wheat or barley, and dry the resulting damp mass, preferably to a moisture content of 10 percent or less. A carrier such as sodium carboxylmethyl cellulose may again be incorporated into the composition. This form of processing gives an active enzyme product, suitable for use in, for example, animal feeds, without recourse to expensive solvent precipitations. The enzyme-containing liquid concentrate may itself be employed as the .beta.-glucanase source in subsequent use of the enzyme; materials such as sodium chloride that confer enzyme storage stability, enzyme thermostability and/or bacteriological stability may if desired be added to such liquid concentrates. Alternatively the liquid concentrate may be dried, e.g. by spray drying, freeze drying or roller drying to yield a dry enzyme composition.

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L9: Entry 7 of 12 File: USPT Apr 29, 1997

DOCUMENT-IDENTIFIER: US 5624678 A
TITLE: Method and composition for treatment and/or prophylaxis of coccidiosis

DEPR:
The diet of the chicks in the groups C and D was supplemented by an enzyme mix including xylanase obtained from Trichoderma Longibrachiatum and .beta.-glucanase also obtained from Trichoderma Longibrachiatum. Thus, a pre-mix containing crude xylanase and crude .beta.-glucanase was prepared and coated on a cereal carrier. This was then added to the above wheat-based feed such that the resulting feeds comprised about 0.0025 g of xylanase protein and about 0.005 g of .beta.-glucanase protein per kg of feed. The diets fed to the chicks in groups A and B were not supplemented with enzymes.

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L9: Entry 6 of 12 File: USPT Sep 2, 1997

DOCUMENT-IDENTIFIER: US 5662901 A
TITLE: Enzymatic grain conditioner and methods of using it

BSPR:
U.S. Pat. No. 3,880,742 (James et al.) discloses the incorporation of a thermostable beta-glucanase into animal feeds containing barley to degrade the barley beta-glucan. James et al. teaches that the beta-glucanase can be added as a fermentation extract of Penicillum emersonii and that the fermentation extract also typically contains cellulase and alpha-amylase. The patent teaches that liquid beta-glucanase-containing fermentation extract may be sprayed onto animal feed pellets containing barley or that the enzyme in dry form or which has been absorbed onto an absorbent solid (such as ground wheat or barley) and dried can be incorporated into the feed mix containing barley before it is pelleted. Finally, James et al. teaches that the use of the beta-glucanase in animal feeds containing barley increases the nutritional value of the feed by promoting degradation of the beta-glucan content of barley and causes increased weight gain.

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L9: Entry 9 of 12 File: USPT Nov 28, 1995

DOCUMENT-IDENTIFIER: US 5470725 A
TITLE: Thermostable (1,3-1,4)-.beta.-glucanase

BSPR:
In a still further aspect the invention relates to a plant capable of expressing the DNA fragment as described above. It may be advantageous to construct a plant which is able to express in its grains and germlings a thermostable (1,3-1,4)-.beta.-glucanase as this can eliminate the need for adding the enzyme to, e.g. the mash during the brewing process. Preferably, the plant is oat, barley, rye, wheat, rice or maize or any other plant used in the production of beer, coffee surrogates, feed or other manufacturing processes where the degradation of .beta.-glucans by (1,3-1,4)-.beta.-glucanases is required. A plant with an increased (1,3-1,4)-.beta.-glucanase activity as compared to the plant in its natural form is, e.g. advantageous as a raw material for the production of beer because an increased .beta.-glucanase activity will lead to a decreased amount of .beta.-glucans in the wort which makes the filtration easier and improves the quality of the final product. Accordingly, the present invention relates to a genetic construct useful for producing a thermostable (1,3-1,4)-.beta.-glucanase as defined above, i.e. a (1,3-1,4)-.beta.-glucanase encoded by a DNA fragment as described above which construct comprises 1) a regulatory sequence functionally connected to 2) a DNA fragment as defined above encoding the (1,3-1,4)-.beta.-glucanase, possibly including a nucleotide sequence encoding a signal peptide and 3) a transcription termination DNA sequence, functionally connected to the DNA fragment of 2).